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L-12-187

ATTN: Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT:
Perry Nuclear Power Plant
Docket No. 50-440, License No. NPF-58
Human Performance H.1(b) and H.2(c) Substantive Cross-Cutting Issues

The Nuclear Regulatory Commission (NRC), in Annual Assessment Letter for Perry Nuclear Power Plant (Report 05000440/2011007), stated that performance at the Perry Nuclear Power Plant (PNPP) during the most recent quarter was within the Degraded Cornerstone Column of the NRC's Reactor Oversight Process (ROP) Action Matrix and that Substantive Cross-Cutting Issues (SCCIs) exist with Human Performance Cross-Cutting Aspects H.1(b), Decision-Making, Conservative Assumptions and H.2(c), Resources, Documentation/Procedures.

On April 4, 2012, via letter L-12-115, PNPP provided a written response to the annual assessment letter describing the causes, corrective actions, and metrics to address the SCCIs in H.1(b) and H.2(c). At the time of submittal, the root cause evaluations for the SCCIs were not finalized and, as a result, letter L-12-115 contained an action to submit a follow-up response to the NRC within 30 days after the root cause evaluations are approved.

The root cause evaluations for H.1(b) and H2(c) have since been approved. Attached to this letter is the follow-up response which provides the information requested by the NRC based on results of the root cause evaluations.

There are no regulatory commitments contained in this letter. If there are any questions, or if additional information is required, please contact Mr. Robert B. Coad, Manager - Regulatory Compliance, at (440) 280-5328.

Sincerely,

Vito A. Kaminskas

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NRR

Attachment:
Human Performance Substantive Cross-Cutting Issues

cc: NRC Region III Administrator
NRC Project Manager
NRC Resident Inspector

The root cause evaluations, which assessed PNPP performance in cross-cutting aspects H.1(b) and H.2(c), have been completed with the results finalized and approved on May 25, 2012. The information requested by the NRC is presented in the following sections for each SCCI.

H.1(b), Decision-Making, Conservative Assumptions

The root cause evaluation found that for routine or lower level type activities, the PNPP site did not have a practical decision-making process for personnel to use when encountering decision points. An appropriate risk perception was not always applied to decisions. Some of the day-to-day decisions faced by plant personnel were not being consistently or effectively challenged. In addition, some personnel did not possess an adequate skill set to challenge risk and safety significant decisions. These factors resulted in certain inconsistent and overly risk tolerant decisions being made.

The Operational Decision Making Issue (ODMI) and Problem Solving and Decision Making processes are consistently used for significant operations and maintenance activities. These are structured processes that involve detailed reviews and approvals by plant management. The H.1(b) performance gap is primarily evident in the preparation for routine activities.

A contributing cause for less than conservative risk and safety significant decisions by the plant staff is insufficient detail and direction in some procedures, work orders, and management expectations. Self-assessments and performance indicators were not consistently used to improve performance regarding risk and safety significant decision-making.

Another contributor to the SCCI was less than adequate rigor and analysis applied to address NRC violations issued to PNPP with cross-cutting aspect H.1(b) assigned. This condition was caused by a knowledge deficiency with the NRC Reactor Oversight Process (ROP), which obscured effective identification and resolution of actions to address and correct deficiencies in risk or safety significant decision-making.

Based on results of the root cause evaluation [Condition Report (CR) 2011-03966], the following corrective actions were developed to address the H.1(b) SCCI:

- Nuclear Operating Procedure (NOP) OP-1007, Risk Management was revised to strengthen the process for documenting system/component availability and changes to risk. This procedure establishes the fundamental administrative controls over management of risk significant activities at PNPP.

- The R.E.A.D.E. tool from INPO Best Practice 07-006, "Human Performance Tools for Managers and Supervisors" has been implemented at the PNPP site. The acronym stands for Recognize, Express, Appraise, Decide, Evaluate. The tool provides a deliberate method to assist site leadership in making risk or safety significant decisions, especially in knowledge based situations. A reference card outlining the R.E.A.D.E. tool has been issued to site leadership for easy reference and use.
- Using the Systematic Approach to Training, the necessary training materials to implement the R.E.A.D.E tool were developed and administered to site leadership including licensed operators, supervisors, managers, and directors.
- A definition of what is a risk or safety significant decision was developed and has been placed in a PNPP site business practice.
- The regulatory interface procedure was revised to require a copy of the NRC violation be included with the CR which documented and evaluated the violation. This will improve the Corrective Action Review Board reviews to ensure the CR evaluation captures the entire NRC scope of concerns.
- Supervisor continuing training was administered covering the NRC ROP and components within cross-cutting areas and aspects.
- The evaluation of decision-making will be improved by performing a documented quarterly snapshot self-assessment of important risk or safety significant decisions made using the R.E.A.D.E. tool over a two year time period.

Additional corrective actions were established that involve training, procedure changes, and industry benchmarking. These are scheduled to be completed by the end of 2012. Long-term effectiveness reviews are planned for March 2013 and March 2014. The corrective actions are intended to improve the quality of decisions made at the plant and have been entered in the corrective action program for tracking and completion. Periodic self-assessments of conservative decision-making are planned through May 2014.

Two new performance metrics have been created to monitor decision-making and use of conservative assumptions. The results will be used to drive improvements in this area and demonstrate that sustained improvement is achieved. The metrics will be updated monthly and then reviewed by PNPP management. Changes to the metrics will be made, as necessary, to ensure their effectiveness. A description of each metric is provided as follows:

Conservative Decision-Making Index: This indicator measures the effective use of Conservative Decision-Making by calculating an index from the number of station clock resets, section clock resets, precursor errors, and unsatisfactory observations. A weighting factor is applied to each element. Inputs to the observation data are taken from the R.E.A.D.E. template, the Operator Fundamentals template, and the Safety and Human Performance template.

T+0 Work: This indicator measures the quality of work documents just prior to release to the field by counting the number of Orders returned to planning status due to deficiencies in the work documents.

Existing performance metrics for H.1(b) include:

Operational Focus Index: This indicator measures the success at resolving equipment problems that challenge the operator's ability to operate the plant safely and reliably. The index is calculated by adding attribute values with weighting factors applied for a given month. The attributes include the number of operator workarounds, control room deficiencies, annunciators in alarm, ODMI issues, maintenance backlog, and open clearances.

Unplanned Entries into Shutdown LCOs: This indicator measures the number of unplanned entries into Technical Specification, Limiting Conditions for Operation (LCOs), Operational Requirements Manual actions, and Offsite Dose Calculation Manual controls that lead to a plant shutdown if not corrected.

H.2(c), Resources, Documentation/Procedures

The root cause evaluation found that the ability to provide complete, accurate and up-to-date documentation/procedures at PNPP was due to having less than adequate management oversight for actions associated with procedure, document, and work instruction quality, detail, and level of usage. The expectations and performance standards for administrative procedure use and adherence were not consistently recognized or implemented by plant personnel. In addition, lack of enforcement by supervisors and managers resulted in flexibility in adhering to these standards.

There have been missed opportunities to recognize performance deficiencies in H.2(c). Earlier evaluations of occurrences in H.2(c) were too narrowly focused on specific issues. The categorization of CRs documenting issues in H.2(c) has been questionable in the past which resulted in less than adequate extent of condition and extent of cause reviews being performed.

Another contributor to the SCCI was a knowledge deficiency with the NRC ROP and cross-cutting components and aspects. Decisions on CR category assignment were being made without considering the issues within the context of NRC Inspection Manual Chapter 0310, "Components Within the Cross-Cutting Areas." The relationship linking a cross-cutting aspect to a NRC violation was not always recognized in order to apply the appropriate level of rigor to evaluate the issues.

Through a search of the corrective action database for past occurrences, the root cause evaluation team identified a contributing cause to the SCCI - less than adequate detail contained in plant procedures, design documentation, and work documents. PNPP recognizes that improvement is needed in the quality and level of usage for procedures and work instructions in particular.

Based on results of the root cause evaluation [CR 2011-06246], the following corrective actions were developed to address the H.2(c) SCCI:

- Training on the NRC Reactor Oversight Process (ROP) (IMC 0305) and Components Within the Cross-Cutting Areas (IMC 0310) was provided to PNPP directors, managers, and supervisors.
- Established direction in the corrective action program procedure to strengthen the implementation aspects of the CR process including requirements and criteria for the CR pre-screening process to evaluate risk and CR categorization.
- Provided guidance to ensure proper CR categorization of NRC violations, including examples of violations that affect the ROP Performance Indicators, and incorporated the guidance into the site CR screening procedure.
- Developed requirements to address NRC Substantive Cross-Cutting Issues, identified aspects, and SCCI precursors. The requirements include assignment, CR categorization, use of operating experience, and response to NRC assessment letters.
- Develop a "Resource Health" suite of cross-functional performance indicators that monitor the quality of documents used to operate and maintain the plant. The indicators will cover procedures, work orders, engineering documents and plant labeling. The indicator will use a pareto style analysis to focus the organization as to where improvement is needed.
- Create a sample of good quality procedures and work instructions and a sample of flawed procedures and work instructions. Communicate the attributes of the sample documents to plant personnel to obtain a common understanding of the desired level of document detail and quality. Embed the sample of quality procedures into the PNPP technical procedures writers guide.

Additional corrective actions were established that involve training, procedure changes, and industry benchmarking. These are scheduled to be completed by the end of 2012. Long-term effectiveness reviews are planned for 2013. The corrective actions are intended to improve the quality of procedures, instructions, and work documents at the plant and have been entered in the corrective action program for tracking and completion.

New performance metrics have been created to monitor document quality. The results will be used to drive improvements in this area and demonstrate that sustained improvement is achieved. Like the metrics developed for H.1(b), the metrics will be updated monthly and then reviewed by PNPP management. Changes to the metrics will be made, as necessary, to ensure their effectiveness. A description of each metric is provided as follows:

Document Change Request Throughput: This indicator measures the effectiveness of processing document change requests (DCRs) to provide accurate procedures and instructions for use. The number of new DCRs submitted versus the number of DCRs completed each month are recorded.

Document Change Request Average Age: This indicator also measures the effectiveness of processing DCRs for implementation. The average age of open DCRs for maintenance, operations, and engineering is counted.

T+8 Procedure Preparation: This indicator compares the number of procedures identified at T+8 needing to be revised versus the number actually revised prior to the start of the scheduled work week.

Priority Document Change Request Backlog: This indicator measures the total number of DCRs for maintenance, operations, and engineering and compares the value to pre-established goals.